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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/398,502	09/17/1999	HABIB RIAZI	3-11-3	1176

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EXAMINER

DUONG, DUC T

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/398,502

Applicant(s)

RIAZI ET AL.

Examiner

Duc T. Duong

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-4, 7-9, 10, 13-15, and 18-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 7-10, 15-18, 22-25, 29, and 30 of co-pending Application No. 09/398,503. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications are drawn to an orthogonal division multiplexing OFDM system with encoder and decoder for modulating and demodulating OFDM signal and transformer for creating OFDM signal having plurality of carriers. The only difference between the two applications is the encoder and decoder of differential. To includes an encoder and decoder of differential ones would have been obvious to ones of ordinary skilled in the art since such differential coder and decoder are well known in the art to use for multi-carrier transmission.

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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 6-10, 12-15, 17-20, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Seki et al (U.S. Patent 5,771,224).

Regarding to claims 1 and 7, Seki discloses an orthogonal frequency division multiplexing OFDM transmitter (Fig. 8) for transmitting an OFDM signal comprising a differential encoder 42 (col. 13 lines 29-33) for modulating said OFDM signal in the frequency domain and a transformer 14 (col. 8 lines 47-52) for creating said OFDM signal.

Regarding to claims 2 and 8, Seki discloses transformer implements a Fast Fourier Transform (col. 8 lines 47-52).

Regarding to claims 3 and 9, it is inherent in OFDM system transformer implements an orthogonal transformation.

Regarding to claims 4 and 10, Seki discloses transformer generates said OFDM signal with plurality of sub-carriers for carrying data (col. 8 lines 55-56).

Regarding to claims 6 and 12, Seki discloses differential encoding is performed with respect to consecutive sub-carriers in said OFDM signal (Fig. 2 col. 13 lines 6-11).

Regarding to claims 13 and 18, Seki discloses an orthogonal frequency division multiplexing OFDM receiver (Fig. 9) for receiving an OFDM signal comprising a transformer 24 (col. 9 lines 34-37) for recovering said OFDM signal having a plurality of sub-carriers and a differential decoder 52 (col. 13 lines 56-62) for demodulating said OFDM signal in the frequency domain.

Regarding to claims 14 and 19, the rejection is similar with respect to claims 2 and 8.

Regarding to claims 15 and 20, the rejection is similar with respect to claims 3 and 9.

Regarding to claims 17 and 22, the rejection is similar with respect to claims 6 and 12.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5, 11, 16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seki in view of Sonnenschein et al (U.S. Patent 6,130,859).

Regarding to claims 5, 11, 16, and 21, Seki discloses all the limitations with respect to claims 1 and 7 includes a null symbol as a reference symbol. Seki fails to teach for at least one unmodulated sub-carrier generated by said transforming step is allocated as a pilot bin to provide a reference within each OFDM symbol. However,

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Sonnenschein discloses for an OFDM transmitter and receiver for transmitting and recovering at least one unmodulated carrier (col. 4 lines 44-55). Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to arrange the transmitter and receiver as taught by Sonnenschein in Seki's system with the motivation for adjusting the frequency shift of signal.

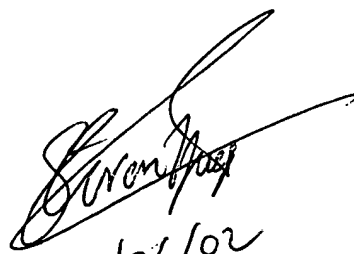
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Duong whose telephone number is 703-605-5146. The examiner can normally be reached on M-Th (8:30 AM-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on 703-308-5340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

DD
October 31, 2002



11/01/02